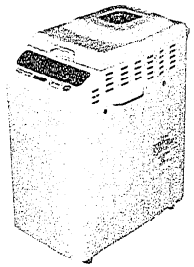
HITACHI

SERVICE MANUAL

NH No. 093E

HB-B301

A.C. 220V-50/60Hz



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1. SPECIFICATIONS

Description		Hitachi Automatic Home Bakery
Model		HB-B301
Rating		A.C. 220V
	Heater	690W
	Fan Motor	14W
	Main Motor	80W
Capacitor		3.2μF (500 VAC)
Dimensions		25.2cm (W) x 36.5cm (D) x 40.5cm (H)
Weight		Approx 7.8 kg
Timer		4 hours 20 minutes to 13 hours digital timer for baking reservation
Thermal Fuse		192°C
Accessories		Measuring Cup, Measuring Spoon, Bread Knife
Lot No.		Indicated on the bottom with permanent ink

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE TO IMPROVEMENT.

AUTOMATIC HOME BAKERY

FEBRUARY 1994 HITACHI HOMETEC, LTD. KASUKABE WORKS

2. OUTLINE OF STRUCTURE

A detachable bread pan is mounted on the center of this bakery. Projected from the bottom center of the bread pan is a rotary shaft to which a detachable mixing blade is attached. A bearing assembly is located under the bread pan and it is mounted on the chassis. The mixing motor is mounted on the chassis on the front side, its driving power is transmitted to the mixing blade inside the bread pan via a pulley, and a belt. The steel case is flanked around the bread pan and it forms a heating chamber.

A heater extends from the bottom of heating chamber to a side wall. The heater on the side wall is covered with a duct. A casing is provided on the outside of the latter side wall, and the fan inside the casing is driven by the fan motor to circulate hot or warm air in the heating chamber. A bread pan temperature censor is provided on the bottom of heating chamber; it remains in contact with the bottom of bread pan, and senses the temperature of a dough in the bread pan. The heater, main motor and fan motor are controlled by the above sensor output and a microcomputer in the control panel on the front top of bakery.

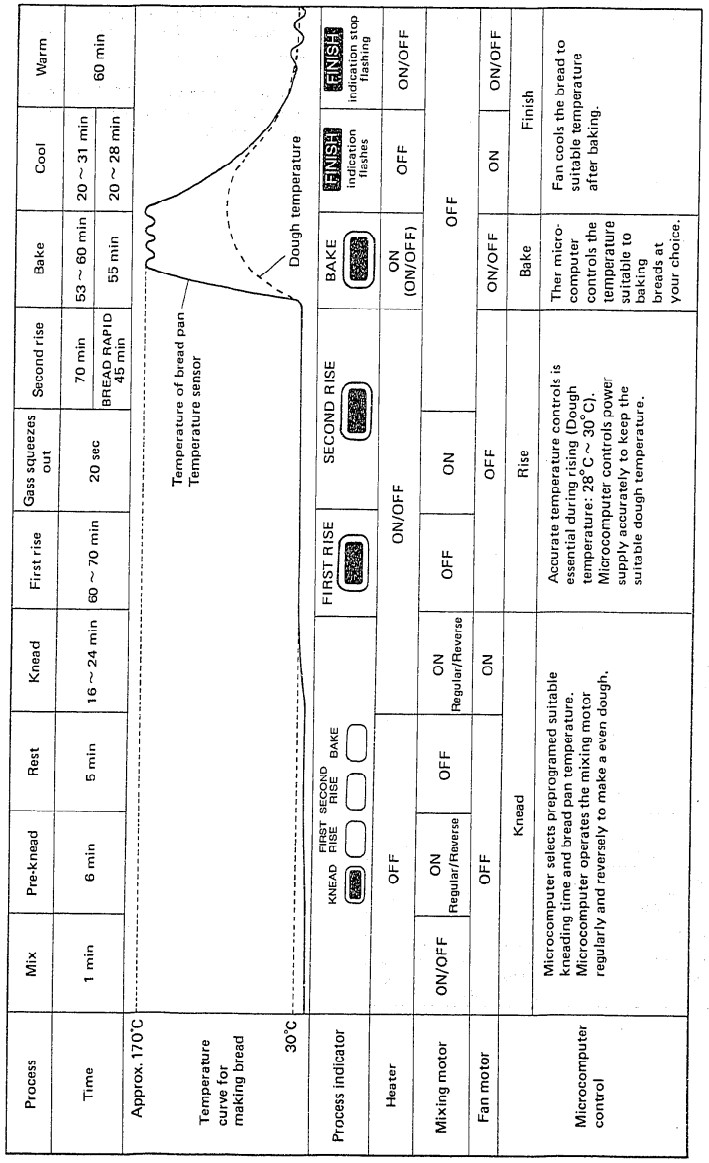
The bakery itself is enclosed with plastic and steel sheets, and a detachable lid is placed on its top.

Major Features

1 You can select four loaf size: small, medium, large or extra large.
2 Hot air convection assures even and fine baking.
3 You can set the color setting to "light", "medium" or "dark".
4 The bread maker let you have delicious fresh bread every morning by using the built-in 13 hr. timer operation.
5 Quick baking function enables you to bake bread in 2 hours and 50 minutes.
6 Lock button blocks the other settings.
7 Backup function maintains the baking condition for about 10 minutes in case of power failure.
8 With window to view the making operation.
9 Multiple use operation. – Bread, Bread Rapid, Mix Bread, Dough, Jam and Cake.

3. BASIC OPERATION

3-1 Bread menu



3-2 Control of BREAD RAPID menu

Though it is the same as the Bread menu, the fermentation process is cut short as much as the increased volume of yeast, thus reducing the total baking time.

3-3 Controls of MIX BREAD menu

Though it is the same as the Bread menu, but the finishing temperature is set lower to prevent over-baking as the dough contains more sugar. The mixing timing of raisins is warned with a beep sound (4 minutes before finishing Kneading).

3-5 Control of CAKE 1 (Sponge CAKE) menu

Process	Pre-heating	Bake	Cooling
Timer (Minute)	2	43	20
Heater	ON	ON/OFF	OFF
Mixing motor	OFF	OFF	OFF
Fan motor	OFF	ON	ON
Microcomputer control		Temperature control suitable to baking	FINISH indication flashes

3-6 Control of CAKE 2 (Pound Cake) menu

Process	Pre-heating	Bake	Cooling
Time (Minute)	2	65	20
Heater	ON	ON/OFF	OFF
Mixing motor	OFF	OFF	OFF
Fan motor	OFF	ON	ON
Microcomputer control		Temperature control suitable to baking	FINISH indication flashes

3-7 Control of JAM menu

Process	Pre-heating	Cooking	Cooling
Time (Minute)	15	80	20
Heater	ON/OFF	ON/OFF	OFF
Mixing motor	OFF	ON/OFF	OFF
Fan motor	ON	ON	ON
Microcomputer control		Mixing blade turns intermittently	FINISH indication flashes

3-4 Control Dough menu

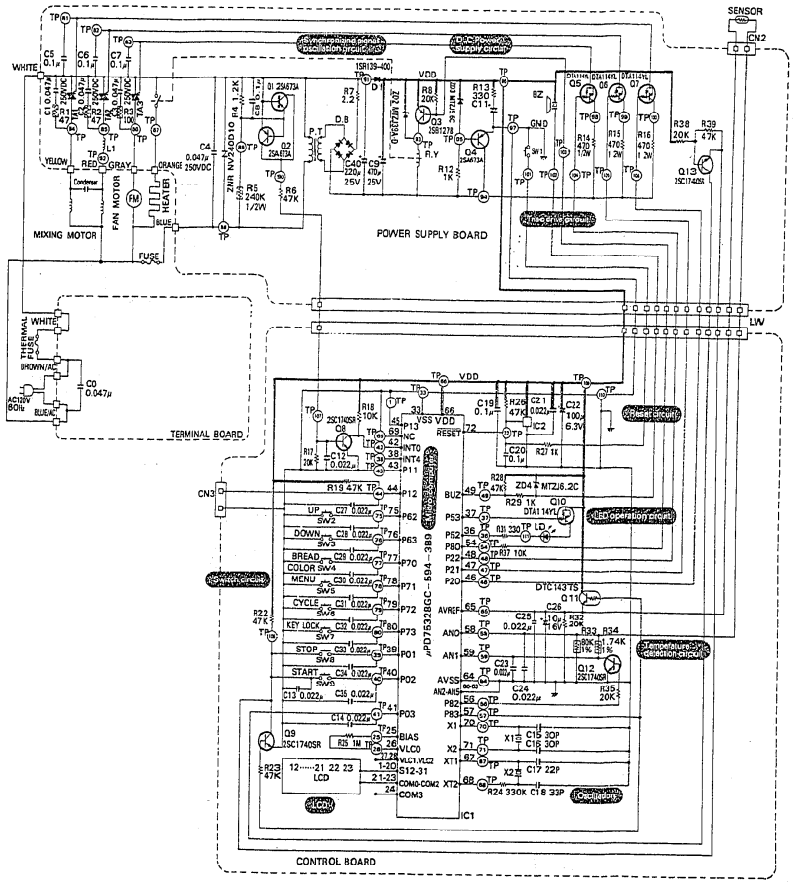
3-4-1 Control of KNEAD only cycle

It operate until the Knead in Bread menu and beeping sounds to tell you the finish.

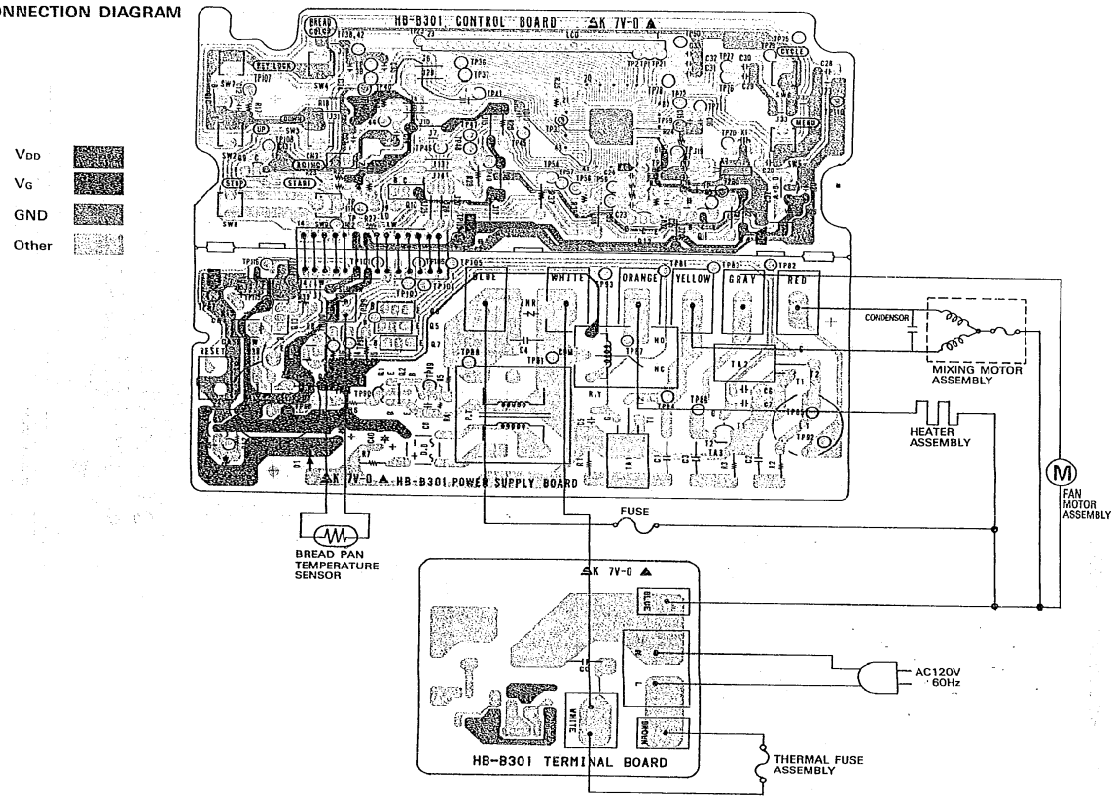
3-4-2 Control of KNEAD and FIRST RISE cycle

It operate until the First rise in Bread menu and beeping sounds to tell you the finish.

4. CONTROL CIRCUIT DIAGRAM



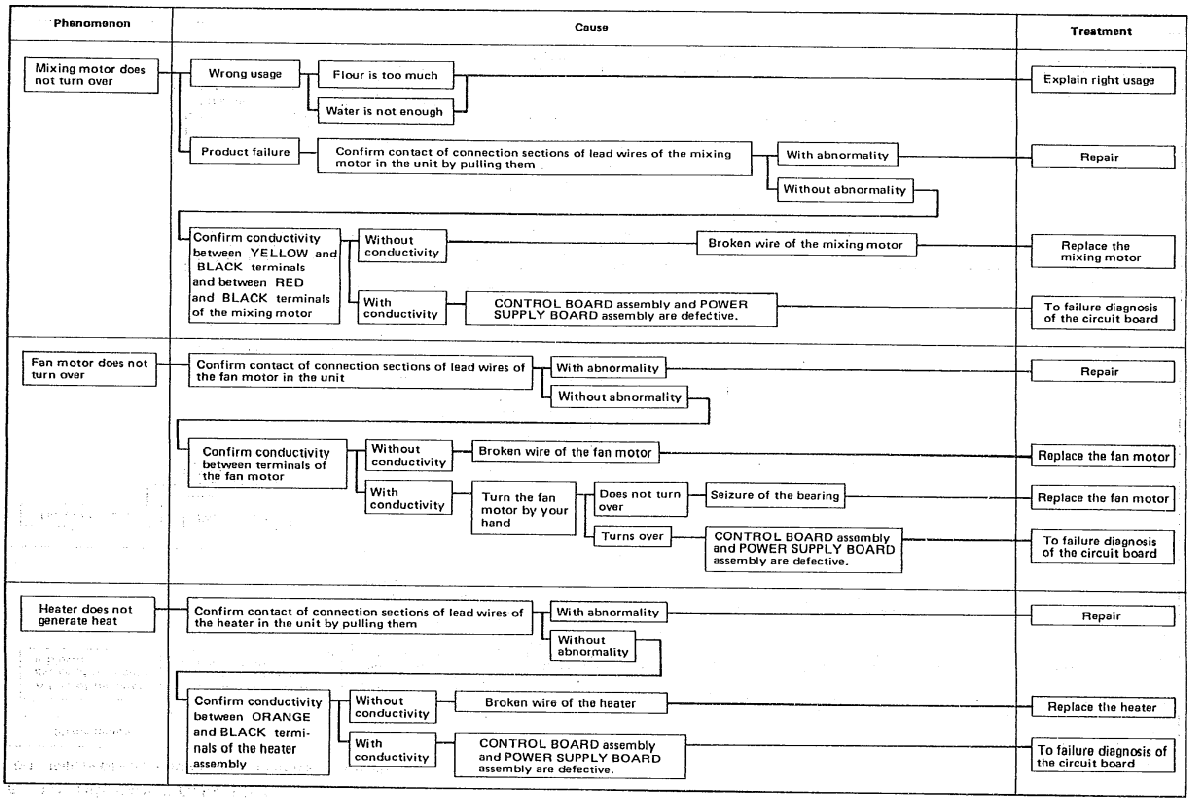
WIRE CONNECTION DIAGRAM

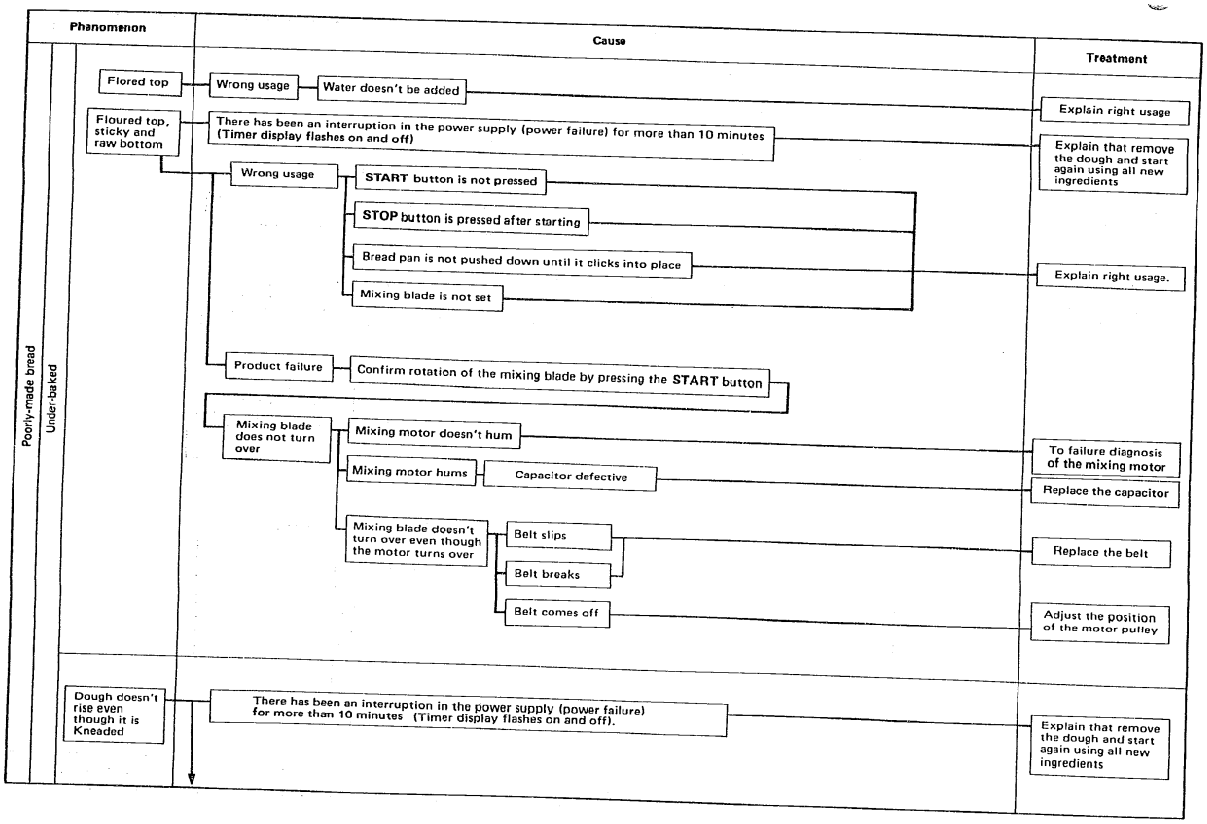


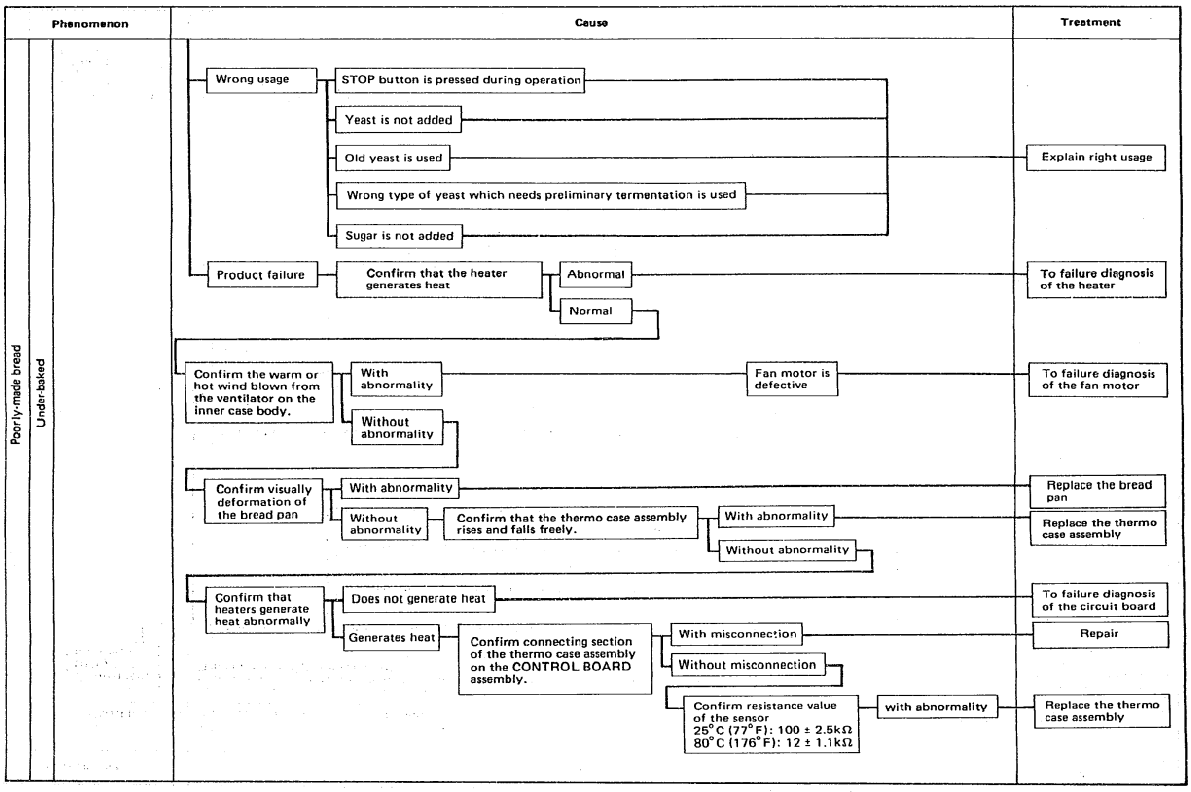
6. TROUBLESHOOTING LIST

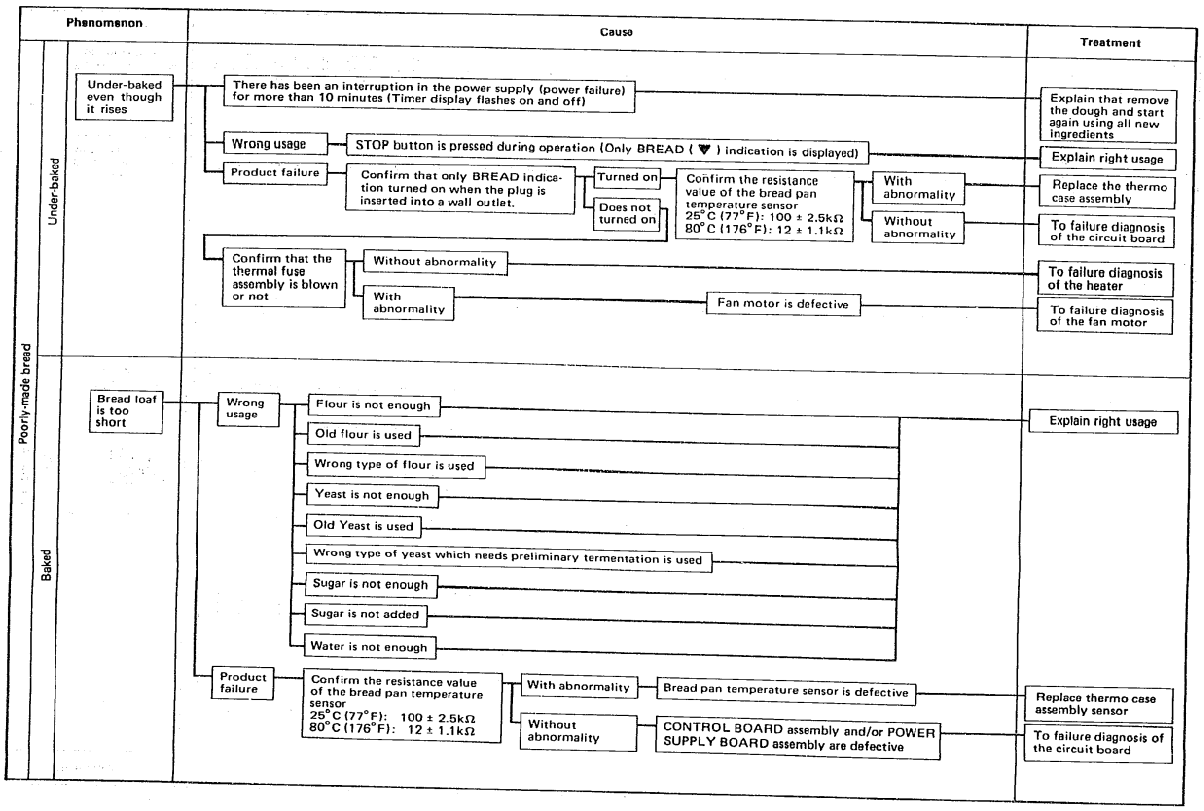
6-1 Failure Diagnosis other than Circuit Board Assembly

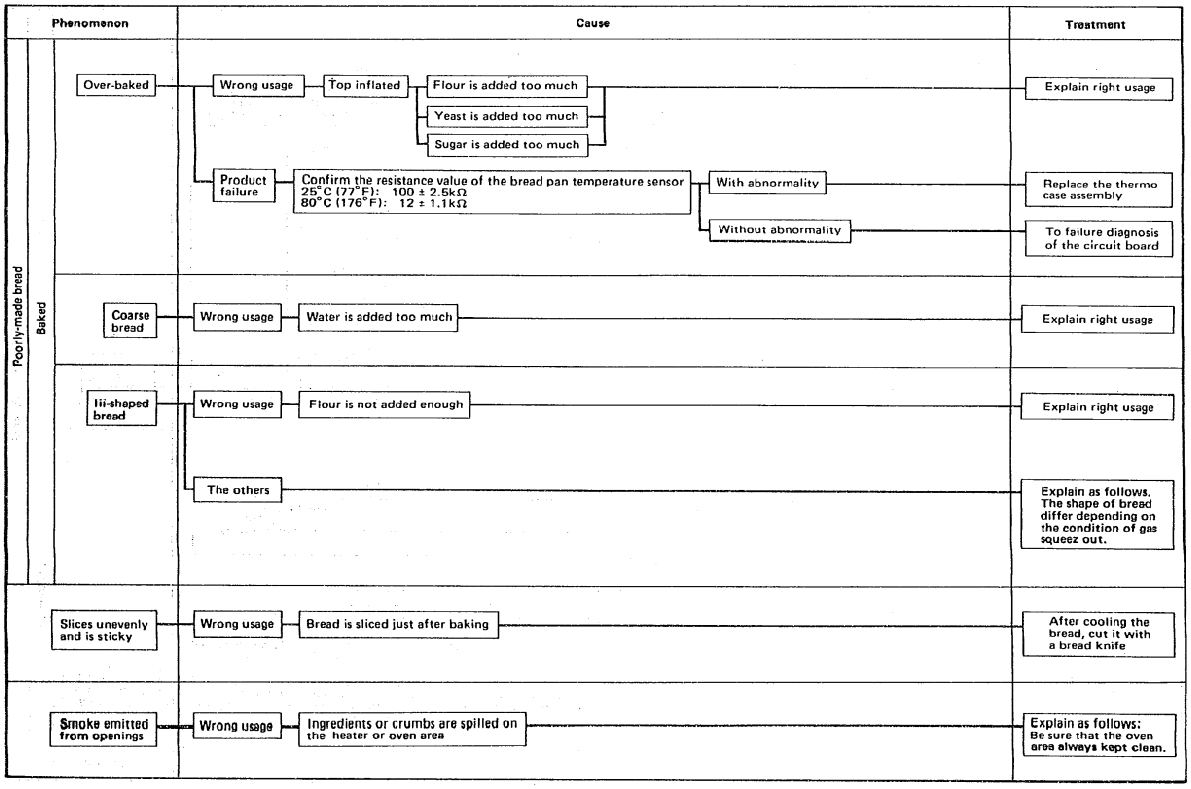
Phenomenon	Cause					Treatment
A fuse of the safety device of the house is blown.	Confirm conductivity between both edges of plug by tester	With conductivity ... The resistance value is almost zero (There is short circuit.)	Confirm visually short circuit and contact of installation and connection sections of cord and inside lead wire	With abnormality		Repair
				Without abnormality	Short circuit in the cord, short circuit in the plug	Replacement
		With conductivity ... The resistance value is approx. 1kΩ.	Other components are failed	When the cord assembly is not abnormal.	Short circuit of the section not visually confirmed	Repair
Does not operate	Power failure					
	Press the RESET switch	Operates				
		Does not operate	Confirm contact of connection sections of cord, inside lead wire, heaters, motors, etc. in the unit by puling them.	With abnormality (Looseness of screw and faston terminal, etc.)		Repair
				Without abnormality		
	Confirm conductivity between plug edge and cord end by tester	Without conductivity	Broken line in the cord. Defective contact in the plug			Replace the cord assembly
		With conductivity				
	Confirm visually contact between plug edge and plug socket. Much play between plug edge and plug socket, etc.	With abnormality				Repair
		Confirm the plug socket too	Consult with the service shop when there is abnormality			
		Without abnormality				
	Confirm conductivity of the thermal fuse assembly	Without conductivity	Thermal fuse is defective			Replace the thermal fuse
		With conductivity	CONTROL BOARD assembly and POWER SUPPLY BOARD assembly are defective.			To failure diagnosis of the circuit board

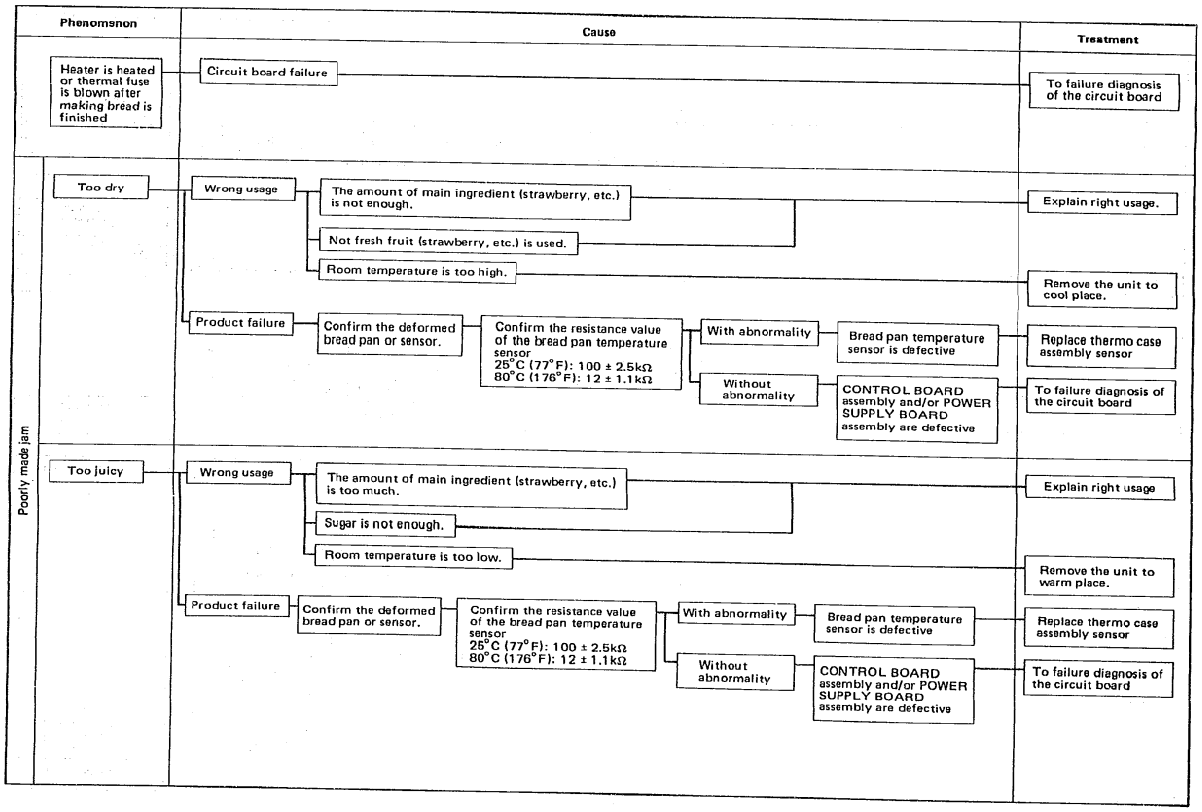

Phenomenon
Cause
Treatment
Mixing motor does not turn over
Wrong usage
Flour is too much
Water is not enough
Explain right usage
Product failure
Confirm contact of connection sections of lead wires of the mixing motor in the unit by pulling them
With abnormality
Without abnormality
Repair
Confirm conductivity between YELLOW and BLACK terminals and between RED and BLACK terminals of the mixing motor
Without conductivity
Broken wire of the mixing motor
Replace the mixing motor
With conductivity
CONTROL BOARD assembly and POWER SUPPLY BOARD assembly are defective.
To failure diagnosis of the circuit board
Fan motor does not turn over
Confirm contact of connection sections of lead wires of the fan motor in the unit
With abnormality
Without abnormality
Repair
Confirm conductivity between terminals of the fan motor
Without conductivity
Broken wire of the fan motor
Replace the fan motor
With conductivity
Turn the fan motor by your hand
Does not turn over
Seizure of the bearing
Replace the fan motor
Turns over
CONTROL BOARD assembly and POWER SUPPLY BOARD assembly are defective.
To failure diagnosis of the circuit board
Heater does not generate heat
Confirm contact of connection sections of lead wires of the heater in the unit by pulling them
With abnormality
Without abnormality
Repair
Confirm conductivity between ORANGE and BLACK terminals of the heater assembly
Without conductivity
Broken wire of the heater
Replace the heater
With conductivity
CONTROL BOARD assembly and POWER SUPPLY BOARD assembly are defective.
To failure diagnosis of the circuit board

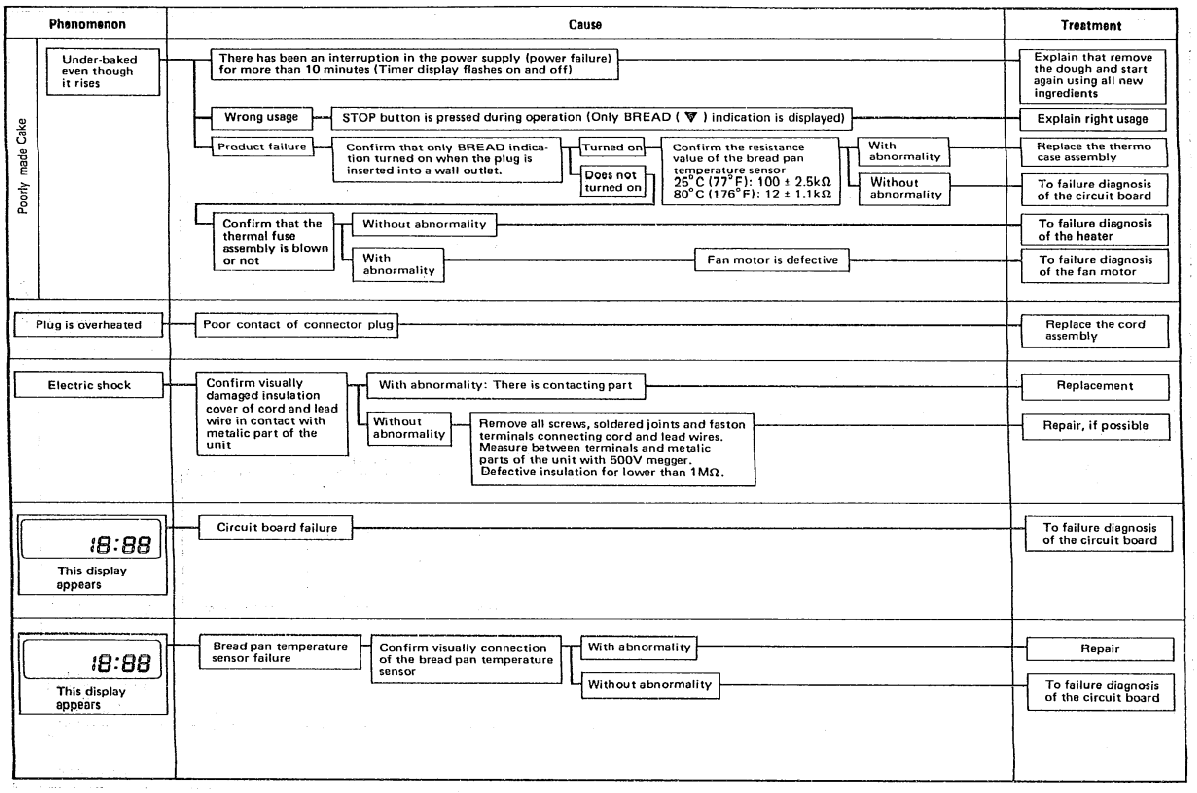

Phenomenon
Cause
Treatment
Poorly-made bread
Under-baked
Flored top
Wrong usage
Water doesn't be added
Explain right usage
Floured top, sticky and raw bottom
There has been an interruption in the power supply (power failure) for more than 10 minutes (Timer display flashes on and off)
Explain that remove the dough and start again using all new ingredients
Wrong usage
START button is not pressed
STOP button is pressed after starting
Bread pan is not pushed down until it clicks into place
Mixing blade is not set
Explain right usage.
Product failure
Confirm rotation of the mixing blade by pressing the START button
Mixing blade does not turn over
Mixing motor doesn't hum
To failure diagnosis of the mixing motor
Mixing motor hums
Capacitor defective
Replace the capacitor
Mixing blade doesn't turn over even though the motor turns over
Belt slips
Belt breaks
Replace the belt
Belt comes off
Adjust the position of the motor pulley
Dough doesn't rise even though it is Kneaded
There has been an interruption in the power supply (power failure) for more than 10 minutes (Timer display flashes on and off).
Explain that remove the dough and start again using all new ingredients


Phenomenon
Cause
Treatment
Poorly-made bread
Under-baked
Wrong usage
STOP button is pressed during operation
Yeast is not added
Old yeast is used
Wrong type of yeast which needs preliminary termentation is used
Sugar is not added
Explain right usage
Product failure
Confirm that the heater generates heat
Abnormal
Normal
To failure diagnosis of the heater
Confirm the warm or hot wind blown from the ventilator on the inner case body.
With abnormality
Without abnormality
Fan motor is defective
To failure diagnosis of the fan motor
Confirm visually deformation of the bread pan
With abnormality
Replace the bread pan
Without abnormality
Confirm that the thermo case assembly rises and falls freely.
With abnormality
Without abnormality
Replace the thermo case assembly
Confirm that heaters generate heat abnormally
Does not generate heat
To failure diagnosis of the circuit board
Generates heat
Confirm connecting section of the thermo case assembly on the CONTROL BOARD assembly.
With misconnection
Repair
Without misconnection
Confirm resistance value of the sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
with abnormality
Replace the thermo case assembly

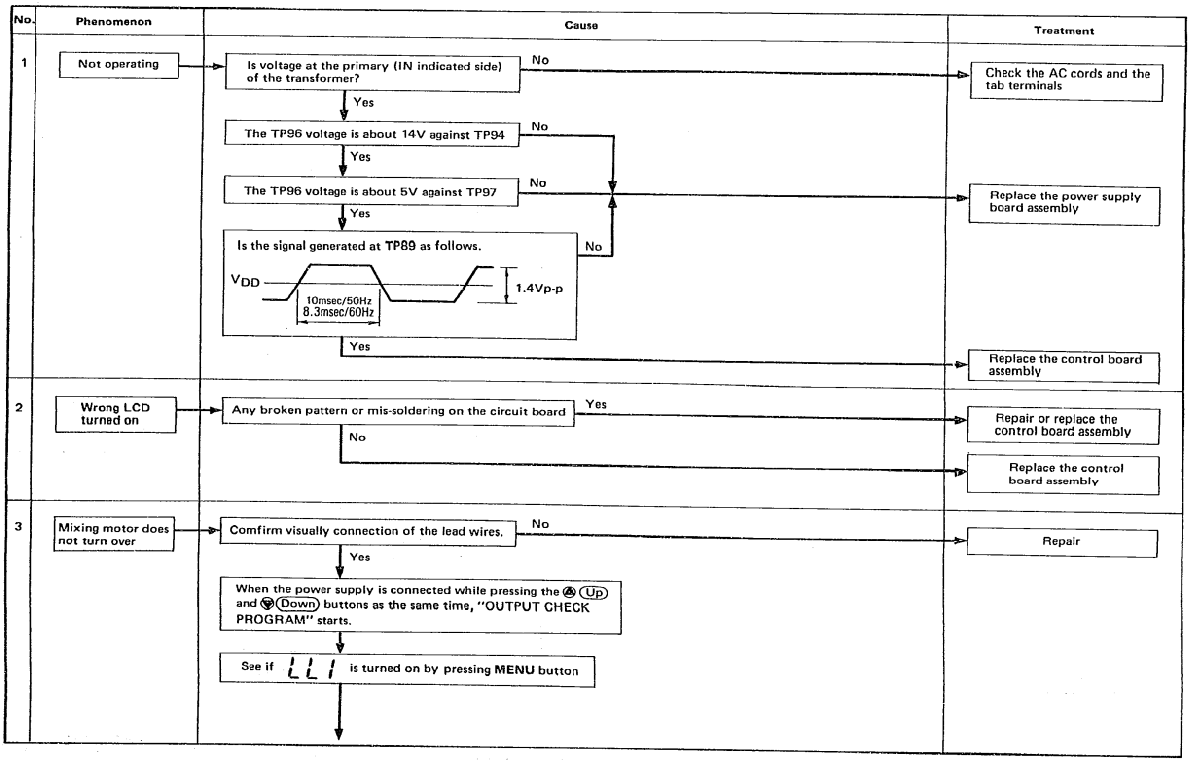

Phenomenon
Cause
Treatment
Poorly-made bread
Under-baked
Under-baked even though it rises
There has been an interruption in the power supply (power failure) for more than 10 minutes (Timer display flashes on and off)
Explain that remove the dough and start again using all new ingredients
Wrong usage
STOP button is pressed during operation (Only BREAD (♥) indication is displayed)
Explain right usage
Product failure
Confirm that only BREAD indication turned on when the plug is inserted into a wall outlet.
Turned on
Does not turned on
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Replace the thermo case assembly
Without abnormality
To failure diagnosis of the circuit board
Confirm that the thermal fuse assembly is blown or not
Without abnormality
To failure diagnosis of the heater
With abnormality
Fan motor is defective
To failure diagnosis of the fan motor
Baked
Bread loaf is too short
Wrong usage
Flour is not enough
Old flour is used
Wrong type of flour is used
Yeast is not enough
Old Yeast is used
Wrong type of yeast which needs preliminary termentation is used
Sugar is not enough
Sugar is not added
Water is not enough
Explain right usage
Product failure
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Bread pan temperature sensor is defective
Replace thermo case assembly sensor
Without abnormality
CONTROL BOARD assembly and/or POWER SUPPLY BOARD assembly are defective
To failure diagnosis of the circuit board

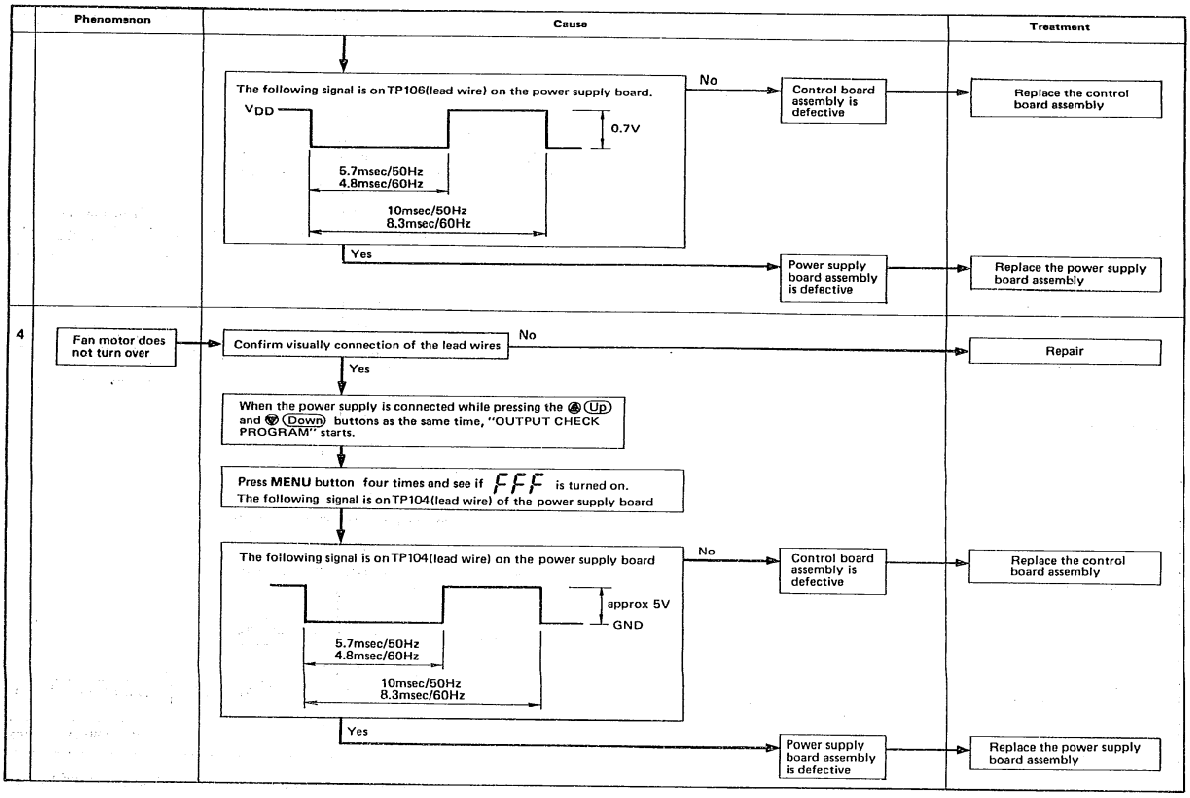

Phenomenon
Cause
Treatment
Poorly-made bread
Baked
Over-baked
Wrong usage
Top inflated
Flour is added too much
Yeast is added too much
Sugar is added too much
Explain right usage
Product failure
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Replace the thermo case assembly
Without abnormality
To failure diagnosis of the circuit board
Coarse bread
Wrong usage
Water is added too much
Explain right usage
Ill-shaped bread
Wrong usage
Flour is not added enough
Explain right usage
The others
Explain as follows. The shape of bread differ depending on the condition of gas squeez out.
Slices unevenly and is sticky
Wrong usage
Bread is sliced just after baking
After cooling the bread, cut it with a bread knife
Smoke emitted from openings
Wrong usage
Ingredients or crumbs are spilled on the heater or oven area
Explain as follows: Be sure that the oven area always kept clean.

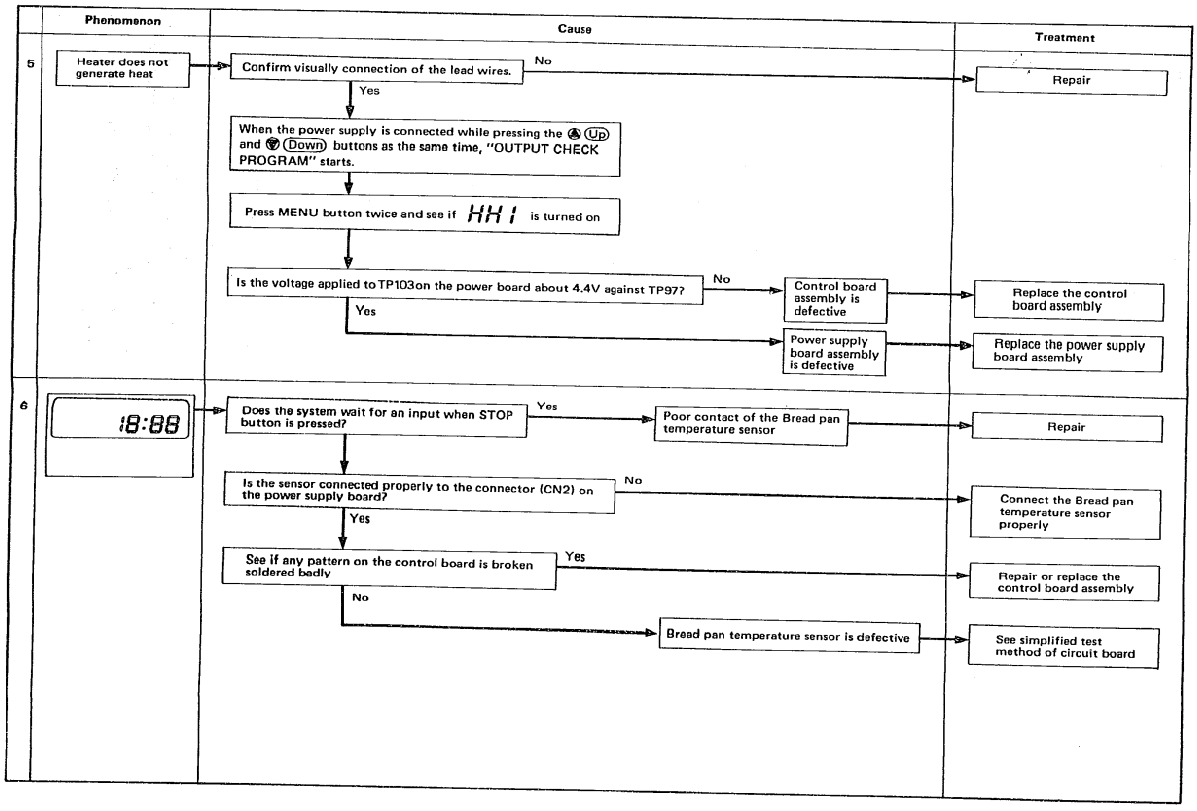

Phenomenon
Cause
Treatment
Heater is heated or thermal fuse is blown after making bread is finished
Circuit board failure
To failure diagnosis of the circuit board
Poorly made jam
Too dry
Wrong usage
The amount of main ingredient (strawberry, etc.) is not enough.
Not fresh fruit (strawberry, etc.) is used.
Explain right usage.
Room temperature is too high.
Remove the unit to cool place.
Product failure
Confirm the deformed bread pan or sensor.
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Bread pan temperature sensor is defective
Replace thermo case assembly sensor
Without abnormality
CONTROL BOARD assembly and/or POWER SUPPLY BOARD assembly are defective
To failure diagnosis of the circuit board
Too juicy
Wrong usage
The amount of main ingredient (strawberry, etc.) is too much.
Sugar is not enough.
Explain right usage
Room temperature is too low.
Remove the unit to warm place.
Product failure
Confirm the deformed bread pan or sensor.
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Bread pan temperature sensor is defective
Replace thermo case assembly sensor
Without abnormality
CONTROL BOARD assembly and/or POWER SUPPLY BOARD assembly are defective
To failure diagnosis of the circuit board


Phenomenon
Cause
Treatment
Poorly made Cake
Under-baked even though it rises
There has been an interruption in the power supply (power failure) for more than 10 minutes (Timer display flashes on and off)
Explain that remove the dough and start again using all new ingredients
Wrong usage
STOP button is pressed during operation (Only BREAD (▼) indication is displayed)
Explain right usage
Product failure
Confirm that only BREAD indication turned on when the plug is inserted into a wall outlet.
Turnad on
Does not turned on
Confirm the resistance value of the bread pan temperature sensor
25°C (77°F): 100 ± 2.5kΩ
80°C (176°F): 12 ± 1.1kΩ
With abnormality
Without abnormality
Replace the thermo case assembly
To failure diagnosis of the circuit board
Confirm that the thermal fuse assembly is blown or not
Without abnormality
With abnormality
Fan motor is defective
To failure diagnosis of the heater
To failure diagnosis of the fan motor
Plug is overheated
Poor contact of connector plug
Replace the cord assembly
Electric shock
Confirm visually damaged insulation cover of cord and lead wire in contact with metalic part of the unit
With abnormality: There is contacting part
Without abnormality
Remove all screws, soldered joints and feston terminals connecting cord and lead wires. Measure between terminals and metalic parts of the unit with 500V megger. Defective insulation for lower than 1MΩ.
Replacement
Repair, if possible
This display appears
Circuit board failure
To failure diagnosis of the circuit board
This display appears
Bread pan temperature sensor failure
Confirm visually connection of the bread pan temperature sensor
With abnormality
Without abnormality
Repair
To failure diagnosis of the circuit board

6-2 Diagnosis of Failures of Circuit Board (See if any circuit board, pattern or component is broken in advance)




Phenomenon
Cause
Treatment
The following signal is on TP106(lead wire) on the power supply board.
VDD
0.7V
5.7msec/50Hz
4.8msec/60Hz
10msec/50Hz
8.3msec/60Hz
No
Control board assembly is defective
Replace the control board assembly
Yes
Power supply board assembly is defective
Replace the power supply board assembly
4
Fan motor does not turn over
Confirm visually connection of the lead wires
No
Repair
Yes
When the power supply is connected while pressing the (Up) and (Down) buttons as the same time, "OUTPUT CHECK PROGRAM" starts.
Press MENU button four times and see if FFF is turned on.
The following signal is on TP104(lead wire) of the power supply board
The following signal is on TP104(lead wire) on the power supply board
approx 5V
GND
5.7msec/50Hz
4.8msec/60Hz
10msec/50Hz
8.3msec/60Hz
No
Control board assembly is defective
Replace the control board assembly
Yes
Power supply board assembly is defective
Replace the power supply board assembly


Phenomenon
Cause
Treatment
5
Heater does not generate heat
Confirm visually connection of the lead wires.
No
Repair
Yes
When the power supply is connected while pressing the (Up) and (Down) buttons as the same time, "OUTPUT CHECK PROGRAM" starts.
Press MENU button twice and see if HH1 is turned on
Is the voltage applied to TP103on the power board about 4.4V against TP97?
No
Control board assembly is defective
Replace the control board assembly
Yes
Power supply board assembly is defective
Replace the power supply board assembly
6
18:88
Does the system wait for an input when STOP button is pressed?
Yes
Poor contact of the Bread pan temperature sensor
Repair
Is the sensor connected properly to the connector (CN2) on the power supply board?
No
Connect the Bread pan temperature sensor properly
Yes
See if any pattern on the control board is broken soldered badly
Yes
Repair or replace the control board assembly
No
Bread pan temperature sensor is defective
See simplified test method of circuit board

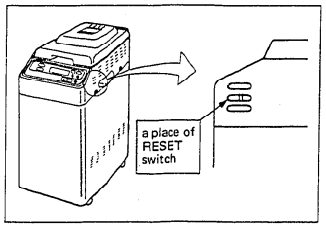
7. SIMPLIFIED TEST

The tests are based on no ingredients in Bread pan.

7-1 Simplified Test Method of Motor and Heater

The RESET switch is located on the inner part of the center slit among those on the right side of panel as shown in the following figure. Press this switch with a match or a sharp stick while pressing both the ▲ UP and ▼ DOWN buttons (or simply insert the power plug while pressing both the ▲ UP and ▼ DOWN buttons if the power plug has been disconnected for two to three hours).

As the "OUTPUT CHECK PROGRAM" is initiated by the above operation, press the MENU button successively, and see if the motor and the heaters are properly powered or not. The "OUTPUT CHECK PROGRAM" runs in the items from 1 to 6 on the right side of this page.



1. Mixing motor intermittently powered
   The mixing motor is powered in a cycle of switching on for 0.1 sec. and switching off for 0.9 sec.
   The LCD display "LL 1" flickers.
   ⇩
   Press the MENU button
   ⇩
2. Mixing motor powered continuously
   The mixing motor is continuously powered and runs CW.
   The LCD display "LL 1" remains on.
   ⇩
   Press the MENU button
   ⇩
3. Heater powered
   The mixing motor is switched off and the heaters are powered.
   The LCD display "HH 1" is turned on.
   ⇩
   Press the MENU button
   ⇩
4. Mixing motor driven reversely
   The heaters are switched off and the mixing motor is continuously powered and runs CCW.
   The LCD display "LL2" is turned on.
   ⇩
   Press the MENU button
   ⇩
5. Fan motor powered
   The mixing motor is switched off and the fan motor is powered.
   The LCD display "FFF" is turned on.
   ⇩
   Press the MENU button
   ⇩
6. Full output
   The mixing motor, the fan motor and the heaters are all powered.
   The LCD display "ALL" is turned on.
   ⇩
   Press the STOP button
   ⇩
   The system is initialed.

7-2 Simplified Test Method of Circuit Board

Press the RESET switch while keeping pressing the BREAD COLOR and LOCK buttons (for the RESET switch operation see item 7-1 above).

The "SELF-DIAGNOSIS PROGRAM" is then initiated. Press the MENU button successively, and see if the board is properly operating.

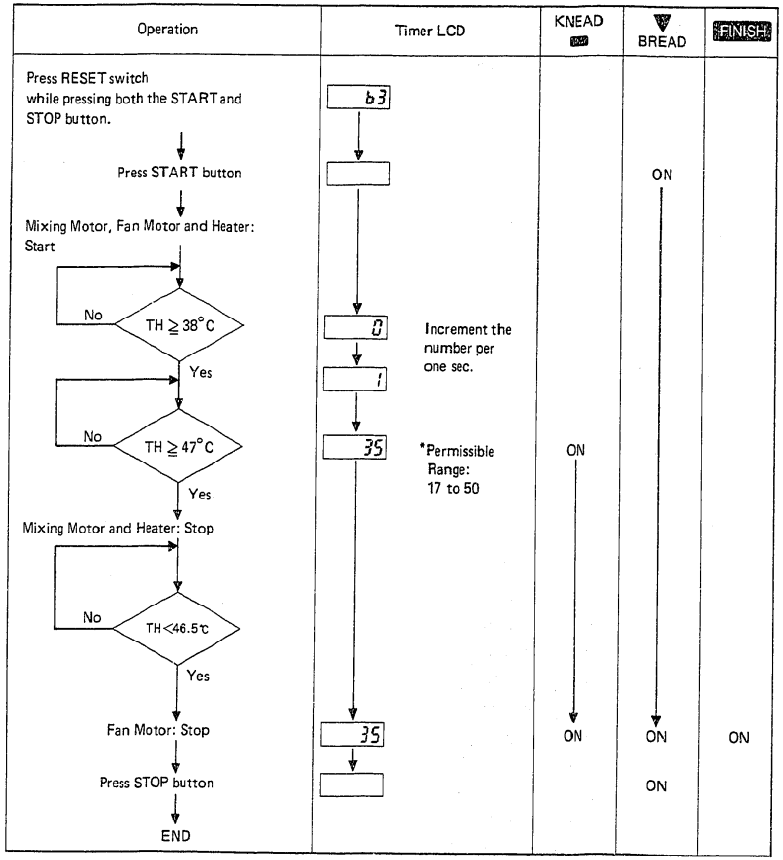
The "SELF-DIAGNOSIS PROGRAM" runs in the following sequence.

Process	Operation	Transfer Condition
1	LCD KNEAD FIRST RISE SECOND RISE BAKE FINISH are turned on.	Press MENU button to proceed to next step
2	LCD [LOCK] BREAD PAN LOW HIGH are turned on.	〃
3	LCD BREAD BREAD RAPID MIX BREAD CAKE JAM are turned on.	〃
4	LCD MEDIUM DARK LIGHT are turned on.	〃
5	Timer LCD "18:88" is turned on.	〃
6	LED "START" is turned on.	〃
7	Display of frequency appears (50Hz... "50" is turned on / 60Hz... "60" is turned on)	〃
8	Timer LCD "63" is turned on.	〃
9	Beep sounds.	〃
10	Mixing motor (Regular) operates ...	〃
11	Fan motor operates ...	〃
12	Mixing motor (Reversal) operates ...	〃
13	Pause	〃
14	Heater heats operates ...	〃
15	The following timer LCD displays are turned depending on the detected temperature: T < −5°C: "1" −5°C ≦ T < 10°C: "2" 10°C ≦ T < 15°C: "3" 15°C ≦ T < 22°C: "4" 22°C ≦ T < 28°C: "5" 28°C ≦ T < 30°C: "6" 30°C ≦ T < 34°C: "7" 34°C ≦ T < 38°C: "8" 38°C ≦ T < 40°C: "9" 40°C ≦ T < 47°C: "10" 47°C ≦ T < 60°C: "11" 60°C ≦ T < 140°C: "12" 140°C ≦ T < 160°C "13" 160°C ≦ T < 165°C: "14" 165°C ≦ T < 170°C: "15" 170°C ≦ T < 180°C: "16" 180°C ≦ T < 220°C: "17" ("0" is displayed if the sensor is kept open, or "18" if it is shorted).	●When pressing the MENU button, operation returns to process 1. ●When pressing the STOP button, this self-diagnosis program is canceled.

Note: Press the STOP button at the finish of the above the test.

7-3 Heat Run Test Method

Press RESET switch (location is indicated in item 7-1.) while pressing both the START and STOP button.
The "HEAT RUN PROGRAM" is initiated.
Press the START button. The "HEAT RUN PROGRAM" runs in the following sequence.



NOTES:

1. *The incremented numbers could be changed under ambient temperature.
2. If *the incremented number was not within 17 to 50, check again this heat run test after cooling down the unit.
   These incorrect number is mainly caused by incorrect putting the bread pan.
   If the re-checked number was not within 17 to 50, check to ensure that bread pan has been contacted with sensor cup.
3. *The correct incremented numbers are based on the following conditions.
   Ambient Temperature: 15°C to 25°C

8. PROCEDURES FOR DISASSEMBLY AND REPAIR

8-1 Pay Attention to the Following at Service and Inspection

(1) Protect against electric shock

Before starting the servicing or checks, ALWAYS disconnect the plug to protect against electric shock.
DO NOT touch any live component when servicing or checking the powered bakery.

(2) Restore original conditions of components and wire layout

For safety protection the insulated tubes are used and the wirings are separated by bundlings away from the heated and detachable components. To mount these insulated components and bunbided wirings, be sure to replace them on their original positions.

8-2 Guide to Repair

(1) In case of defective sensor

Measure the resistance of any defective sensor to determine it is defective.

(2) The positive locks are attached to all the fasten terminals. The termals enclosed with housings can be pulled out by holding the housings. The terminals without housings can be pulled out by unlocking the locks with fingertips. Make sure the terminals are properly locked after inserting them into the locks.

8-3 Procedures for Disassembly

The bracketed figures correspond to the numbers shown in the Service Parts List.

(1) Replacement of lid assembly

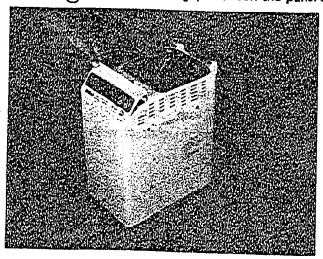
(a) Lift up the lid assembly by above 45°, and pull it askew toward you.

(b) Place the lid assembly with its inside facing upward, remove four screws (68) from the inner lid (13). The insert a (−) driver into the gap between the inner lid (13) and the outer lid (8) and remove the inner lid (13).

(2) Replacement of panel assembly

(a) Remove the screw cover (17) from the panel using a pin and the screw (81).

(b) Insert a (−) driver into the gap between the panel assembly (18) and the upper outer case (21) pull out the panel with the power board assembly (20) and the control board assembly (19) mounted on the panel assembly (18).

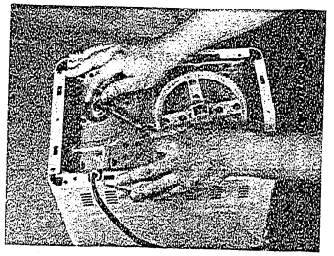


(c) Remove the plug socket terminals from the power board assembly (20) and the screw (71) from the panel assembly. Then disconnect the power supply board assembly (19) and the control board assembly (17).

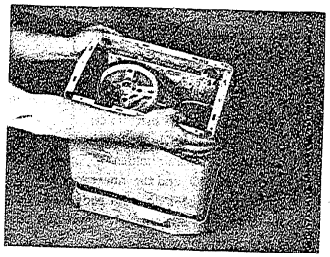
(3) Replacement of Outer case (mixing motor, capacitor (M)Y, thermal fuse assembly)

(a) Place the body upside down, and remove screws from the rubber foots (14). Remove four screws (80) from the button place (15), and remove the plate.

(b) Remove the screws (61), which secure both the upper and under outer cases ((31), (16)). Then remove the under outer case (16).



(c) Replace the body in place, remove the screw cover (17) from the upper outer case (21) using a pin and the screw (81), then remove the upper outer case (21).

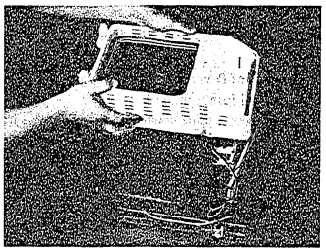


(d) Remove the screw suitably remove the lead wires from these the mixing motor (44), the condenser (M)Y (47) and the thermal fuse assembly (30) can be removed. Remove the lead wires from these components if necessary.

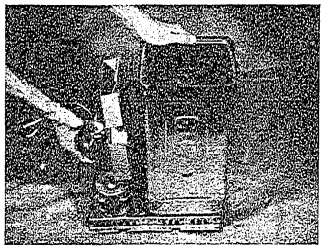
(4) Replacement of fan assembly/fan motor

(a) Stretch out the bent claw on the duct (23) inserted into the inner case body (41), and remove the duct (23).

(b) Remove the screws securing the casing (25) on the inner case body (41) and another ones (80) securing the reflector A (26) on the chassis (55). Then the casing (25) can be removed with the reflector A (26) and the fan motor (29) intact.



(c) Remove the M5 hexagon nut, toothed lock washer and fan stopper. Then remove the fan assembly (24).



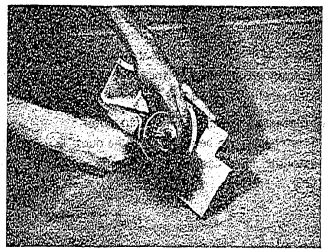
(d) Remove the screws (73) securing the fan motor (29) on the casing (25), and remove the fan motor (29) and the reflector A (26).

(5) Replacement of heater assembly

(a) Remove the four screws (74) securing the inner case bottom (42) on the shaft holder (54).

(b) Remove the screws (67) securing the insulator (2) assembly (35) and heater holder (32), and remove the heater assembly (36) and the inner case.

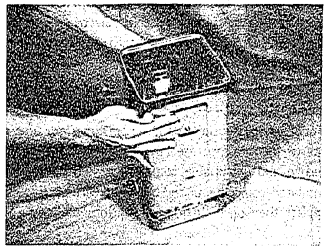
(c) Remove the claw of inner case body (41) inserted into the inner case buttom (42), and pull out the heater assembly (36).



(6) Replacement of bearing assembly

(a) Remove the belt (46) and the M6 hexagon nut securing the pulley (51). Then the pulley can be removed with the M6 washer and the hold plate assembly (50).

(b) Remove the ϕ8U type washer and the thrust washer (52). Then pull up the shaft assembly (53).



(c) Remove three screws (74) securing the bearing assembly (54) on the chassis (55), and pull out the bearing assembly (54).

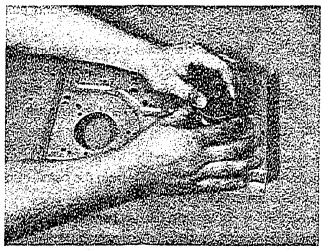
8-4 Procedures for Assembly

The disassembled bakery can be re-assembled in the reverse way, but the following cautions should be taken in its assembling.

(1) Installation of mixing motor

(a) Pull the mixing motor (44) shaft strongly toward the output side before putting the belt (46) on the shaft. The belt comes off easily if the shaft is drawn opposite to the output side.

(b) Adjust the position of the motor pulley (45) for the belt (46) to revolve in the center of pulley (54).



(c) Make sure the projections on the belt (46) are inserted in the groove of the motor pulley (45).

(2) Installation of thermal fuse assembly

Mount the thermal fuse assembly (30) in the way that its fuse holder come in contact with the walls of the inner case body (41).

(3) Installation of heater assembly

Make sure the lock screws of the heater assembly (36) are not clamped so tight in its assembling as to crack or damage the insulators.

(4) Installation of thermo case assembly

The thermo case assembly (37) must be able to rise and fall freely through the opening of the thermo cover (39).

(5) Installation of bread pan assembly

See if the bread pan assembly (6) loaded on the bakery does not allow a play between the hold spring (31) on its both walls, and it is secured in place.

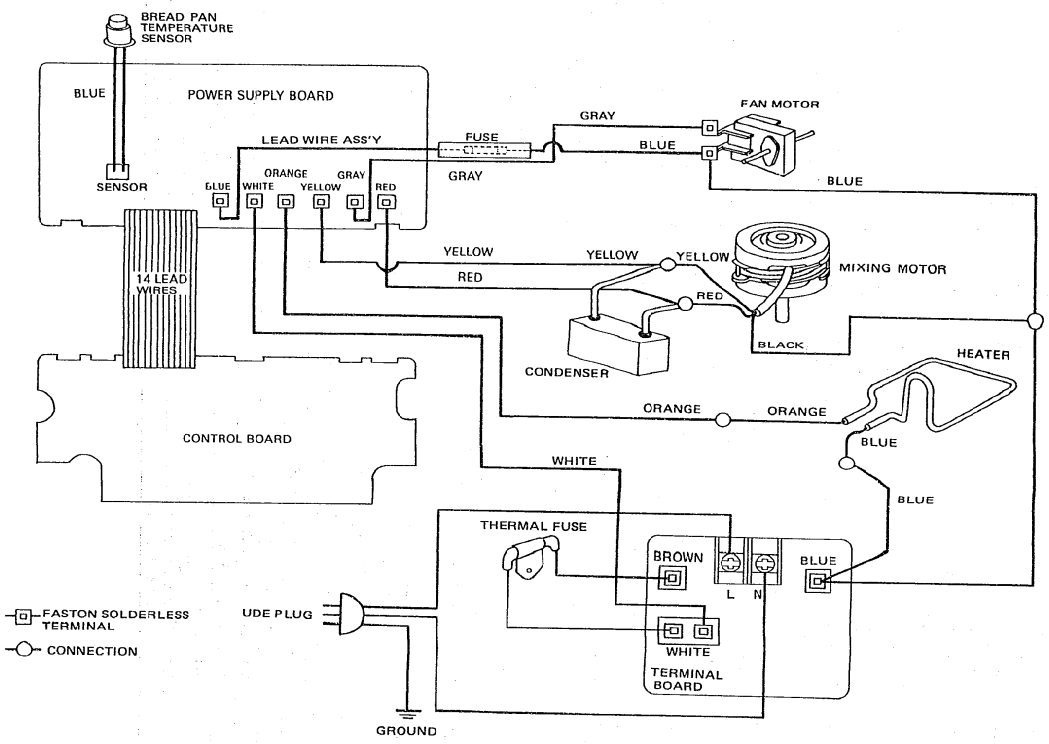
9. SERVICE PARTS LIST

HB-B301 (220V)

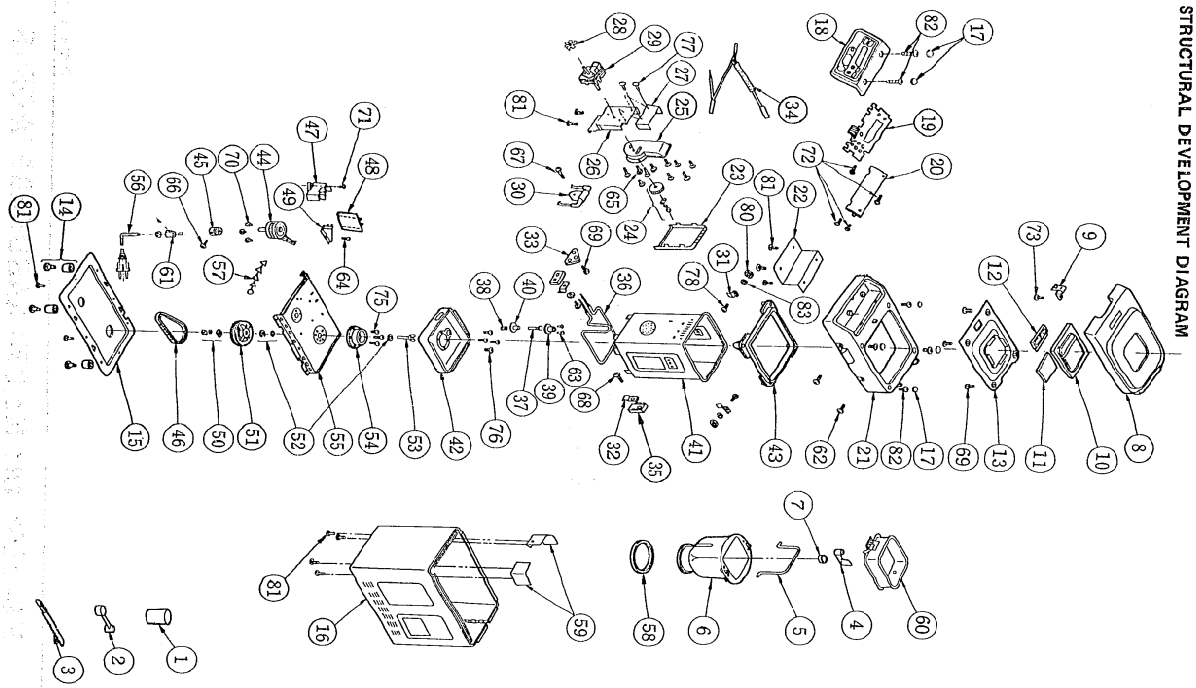
No.	Description	Parts No.	Q'ty	Remarks
1	Measuring Cup	HB-A100 901	1	
2	Measuring Spoon	HB-A100 902	1	
3	Bread Knife	HB-A1 003	1	
4	Mixing Blade	HB-B301 901	1	
5	Handle	HB-B301 902	1	
6	Bread Pan Ass'y	HB-B301 903	1	
7	Packing Ass'y	HB-B100 927	1	
8	Lid Ass'y (WH)	HB-B100 901	1	Caution label attached
9	Lock Spring	HB-B2 507	1	
10	Window Frame	HB-B2 508	1	
11	Viewing Window	HB-B2 509	1	
12	Net Ass'y	HB-B301 905	1	
13	Inner Lid	HB-B2 510	1	
14	Rubber Foot Ass'y	HB-A100 905	2	With foot screws
15	Bottom Plate	HB-B100 904	1	
16	Under Outer Case Ass'y	HB-B301 921	1	Quality marking label attached
17	Screw Cover	HB-B2 515	6	
18	Panel Ass'y	HB-B301 907	1	
19	Control Board Ass'y	HB-B301 922	1	With lead ass'y
20	Power Supply Board Ass'y	HB-B301 923	1	
21	Upper Outer Case Ass'y (WH)	HB-B2 520	1	
22	Prevent Board			
23	Duct			
24	Fan Ass'y	HB-B2 522	1	
25	Casing			
26	Reflector A			
27	Reflector B			
28	Cooling Fan			
29	Fan Motor	HB-B100 915		
30	Thermal Fuse Ass'y	HB-B301 924	1	192°C-10A with fuse holder
31	Hold Spring	HB-B2 524	2	
32	Heater Holder			
33	Insulator (1)	HB-B2 525	1	
34	Lead Wire Ass'y I	HB-B301 925	1	With fuse (250V-3A)
35	Insulator (2) Ass'y	HB-B100 917	1	
36	Heater Ass'y	HB-B301 926	1	220V-690W
37	Thermo Case Ass'y	HB-B301 912	1	Thermister and case ass'y
38	Thermo Spring	HB-A1 041	1	
39	Thermo Cover			
40	Stopper Ring			
41	Inner Case Body			
42	Inner Case Bottom			
43	Inner Case Ring	HB-B2 529	1	

No.	Description	Parts No.	Q'ty	Remarks
44	Mixing Motor	HB-B301 927	1	
45	Motor Pulley	HB-A1 034	1	
46	Belt	HB-B2 531	1	
47	Condenser (M) Y	HB-B301 928	1	3.2 μF 500V AC
48	Terminal Board Ass'y	HB-B301 929	1	With overcurrent protecter
49	Terminal Cover			
50	Hold Plate Ass'y	HB-B2 535	1	
51	Pulley	HB-A1 023	1	
52	Washer Ass'y	HB-A1 026	1	
53	Shaft Ass'y	HB-A1 022	1	With coupling (Lower)
54	Shaft Holder	HB-B2 536	1	(Bearing Ass'y) with bearing
55	Chassis			
56	Power Cord Ass'y	HB-B301 930	1	
57	Binding Band	MRK-400L 043	10	
58	Rubber Packing	HB-B2 540	1	
59	Hold Plate	HB-B301 916	1	
60	Upper Bread Pan Ass'y	HB-B301 904	1	
61	Cord Bush	HB-B100 925	1	
62	4 x 10 ⊕ Truss Head Tap Screw 1 Ni			Parts in Market Used
63	4 x 8 ⊕ Pan Head Tap Screw 1 SUS			Parts in Market Used
64	4 x 8 ⊕ Pan Head Tap Screw 2			Parts in Market Used
65	M4 x 8 ⊕ Truss Head Screw SUS			Parts in Market Used
66	M4 x 8 ⊕ Pan Head Screw			Parts in Market Used
67	4 x 8 ⊕ Pan Head Tap Screw 1 Cr			Parts in Market Used
68	4 x 2 ⊕ Truss Head Tap Screw 1 SUS			Parts in Market Used
69	4 x 12 ⊕ Truss Head Tap Screw 2 SUS			Parts in Market Used
70	M4 x 5 ⊕ Pan Head Screw With Spring Washer			Parts in Market Used
71	3 x 6 ⊕ Pan Head Tap Screw With Spring Washer			Parts in Market Used
72	3 x 8 ⊕ Pan Head Tap Screw 2			Parts in Market Used
73	4 x 10 ⊕ Pan Head Tap Screw 2 SUS			Parts in Market Used
74	M4 x 8⊕ Pan Head Screw SUS			Parts in Market Used
75	4 x 10 ⊕ Pan Head Tap Screw 1 SUS			Parts in Market Used
76	4 x 8 ⊕ Pan Head Tap Screw 2 SUS			Parts in Market Used
77	3 x 8 ⊕ Pan Head Tap Screw 1			Parts in Market Used
78	M4 x 12 ⊕ Truss Head Screw SUS			Parts in Market Used
79	M4 Spring Washer SUS			Parts in Market Used
80	M4 Nut SUS			Parts in Market Used
81	4 x 8 ⊕ Pan Head Tap Screw 1			Parts in Market Used
82	4 x 12 ⊕ Pan Head Tap Screw 1			Parts in Market Used

10. ACTUAL WIRING DIAGRAM



11. STRUCTURAL DEVELOPMENT DIAGRAM



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